

A New *Akermania*
from Sri Lanka (Ceylon)
(Crustacea, Isopoda, Armadillidae)

par

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With 4 figures

ABSTRACT

Akermania besucheti n. sp. is described from the northern part of Sri Lanka. The new species represents a gondwanian element of the isopodean fauna of the island.

Isopoda from Sri Lanka are rather unknown. Occasional records (COLLINGE 1916, JACKSON 1936, BUDDE-LUND 1913, ARCANGELI 1927) are inadequate and need further confirmations.

Informations on the subject are also scanty for the whole indian peninsula (VANDEL 1972).

Many indications suggest Gondwana (VANDEL 1972), and particularly Australian area (VANDEL 1973b), as the centre of origin for the suborder Oniscoidea. Consequently the Indian peninsula, during different phases of its drift, probably played an essential role in the early differentiation and in the diffusion of the suborder in the eurasiatic area.

Therefore such a deficiency of data is peculiar for an area of so great interest for the evolutionary history of Oniscoidea. This lack is emphasized by the fact that the data available on the subject are very often approximate and inaccurate.

Since we dispose of rich collections provided by several expeditions in Sri Lanka, we started the study of the Isopodean fauna of the island.

In the present note, which is the first on the subject, we point out the occurrence in the indian subcontinent, of a representative of the Subfamily Akermaninae (Armadillidae). This provides a better definition of the gondwanian distribution of this heterogeneous group.

The samples examined are part of the collection of the Muséum d'Histoire naturelle de Genève. The holotypus and paratypi are conserved in the same Muséum.



FIG. 1

Akermania besucheti n. sp.Description of *Akermania besucheti* n. sp.

Material examined: Sri Lanka: 2 ♂♂ and 2 ♀♀ from Mihintale (7-II-1970); 3 ♂♂ and 7 ♀♀ from Ambagaswewa (3-II-1970); 1 ♂ and 1 juv. from Puliyan (6-II-1970); 1 ♂ from Medawachchiya (6-II-1970); C. Besuchet and I. Löbl legerunt.

Diagnosis:

Body richly provided with long subequal spine-like tubercles. One of these always occurs medially on each segment of the pereion and the pleon.

Description:

length (of the largest specimen): ♂ 6,5 mm

♀ 9 mm

breadth (of the largest specimen): ♂ 1,5 mm

♀ 2,5 mm

The specimens show a "volvation eusphérique" (sensu VANDEL), with a scanty development upwards of the pleurepimera. Colour (in alcohol) dark violet, with a longitudinal light line situated dorso-medially on the middle area of each segment and a trasversal light band covering almost entirely the fourth pereionite.

Eye consists of 12 ommatidia.

Frontal lamina of the cephalon strongly marked, with a triangular protuberance in its middle.

Exopodite of the uropods absent.

Pereionites strongly convex. The first one with 13 tubercles, two of which on the pronotum.

Pleurepimeron very expanded; posterior margin rounded, anterior margin sharp-pointed. Its anterior part during "volvation" takes place in a slit of the cephalon, just beneath the eye.

The pleurepimeron is characterized by a marked schism and lacks of tubercles each. Following pereionites with 13 tubercles each. Pleurepimera II-VII with a spine-like tubercle on its outer margin, which is never pointed. An evident groove system,

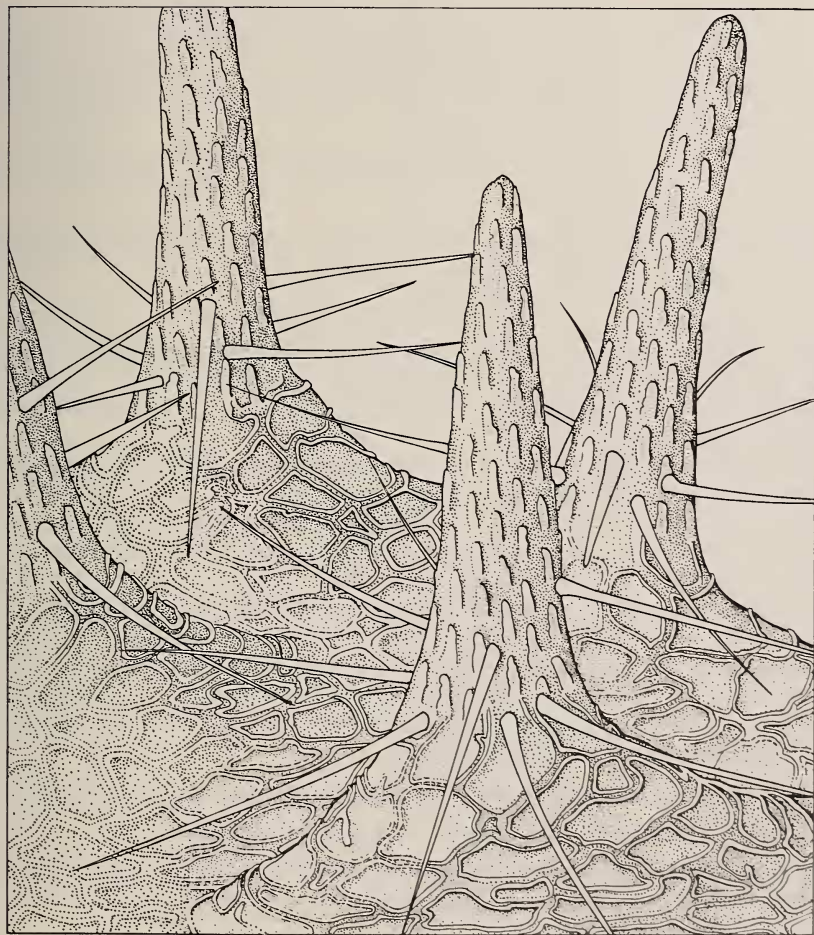


FIG. 2

Akermania besucheti n. sp.: tegumentary characteristics from a scanning micrograph

consisting of two lobes, upper and lower, is markedly developed on the cephalic pleuroepimera, decreases in the 5th one and disappears in the 6th and 7th ones.

Posterior pleurepimera and neopleurons subquadrangular.

I pleopod exopodite absent.

Telson truncated, with two spine-like tubercles.

Body richly provided with long spine-like tubercles. At the base of each tubercle a number of long, thin setae radially settled.

The scanning microscope enabled us to see along the axis of the tubercle some flattened and short setae.

All the other anatomical structures do not show any peculiar features and are given in the illustrations.

Discussion

VANDEL (1973a) considers the distribution of the subfamily Akermaninae a "repartition gondwanienne exemplaire". In the same page of his work, he also asserts that this group is imperfectly known and probably temporary. We are convinced that the same is true for the definition of subfamily: trend to "devolution", trend of the pleuroepimera to cleave, and a plentiful ornamentation.

Evidently all these features indicate a convenient systematic group in which we can temporarily concentrate a number of data, in view of a better accuracy in a future which does not seem so next.

The subfamily includes 9 genera: among these, for example, the genus *Globarmadillo* Richardson, from Guatemala, includes a single species known until now, *G. armatus*, recently redescribed by SHULTZ (1970).

This author considers *Globarmadillo* as a Sphaeroniscidae and compares it with a series of genera completely different from those of the new subfamily Akermaninae.

It is hard to explain these discrepancies since they are caused by the scanty data available at present, on some families of Oniscoidea with a prevailing tropical distribution, particularly Armadillidae and Eubelidae.

Obviously the situation could enable many recombinations, but this would certainly result in a further complication of the nomenclature.

Hence we agree with VANDEL's proposal (1973b) even taking into account the limitations, admitted by the author himself. The diagnostic features of the genus *Akermania* Collinge proposed by BARNARD (1960), concerns the truncated shape of telson, the quadrangular shape of the pleuroepimera 3-5, and the exopodite of the uropod, reduced or absent: VANDEL (1973b) changes the diagnosis, lessening the importance of the shape of the telson and emphasizing the more or less pointed shape of pleuroepimera II-III-IV, and particularly to the enlarged quadrangular shape of V-VI-VII.

According to this new definition, to which the species we described completely fits, the genus *Akermania* includes 4 species:

A. spinosa Collinge, 1919: from the coast of Natal (3 localities) (Barnard 1932).

A. coronata Barnard, 1949: from the forest of Sud Transvaal.

A. sylvatica Barnard, 1959: from Madagascar, collected at 2000 mts on the Ankaratra Mountains.

A. besucheti n. sp.: from Sri Lanka.

The four species are clearly distinguishable one from another, for the ornamentation of the dorsal part of the trunk, and especially of the cephalon and pleon.

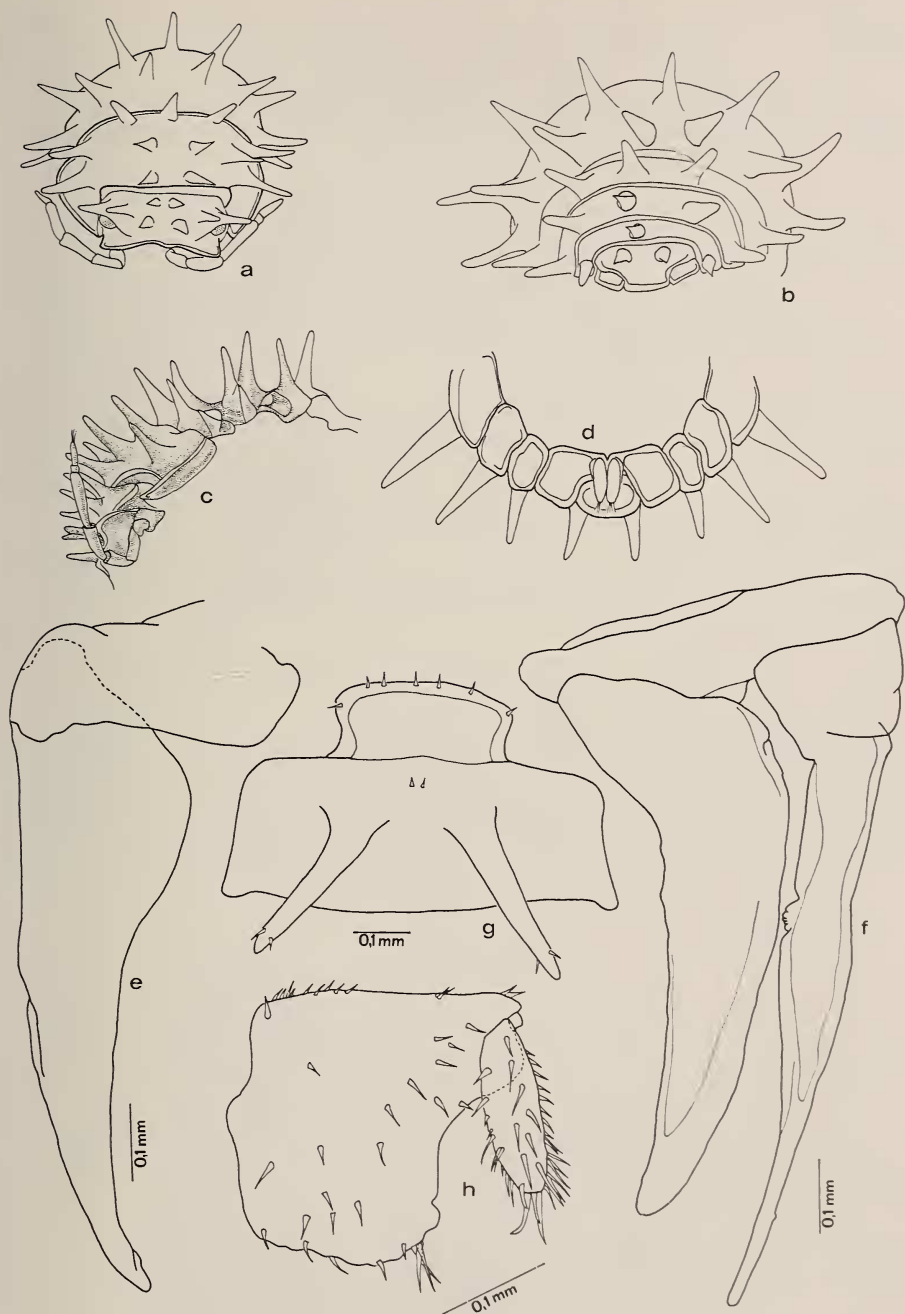


FIG. 3

Akermania besucheti n. sp.:

- a) cephalon and anterior part of the body; b) tubercle disposition on the pleon;
 c) antero lateral view of the pleurepimera indicating the groove mechanism;
 d) ventral view of the pleon; e) 1st pelopod ♂; f) 11th pleopod ♂; g) telson; h) uropod

The central tubercle of pleonite occurring in *A. besucheti* is absent in the other known species.

The shape of the pleuroepimera looks like that of *A. spinosa*.

The four species markedly differ also from an ecological point of view. In fact, *A. spinosa* was collected on the sand of costal downs, *A. coronata* lives in damp environ-

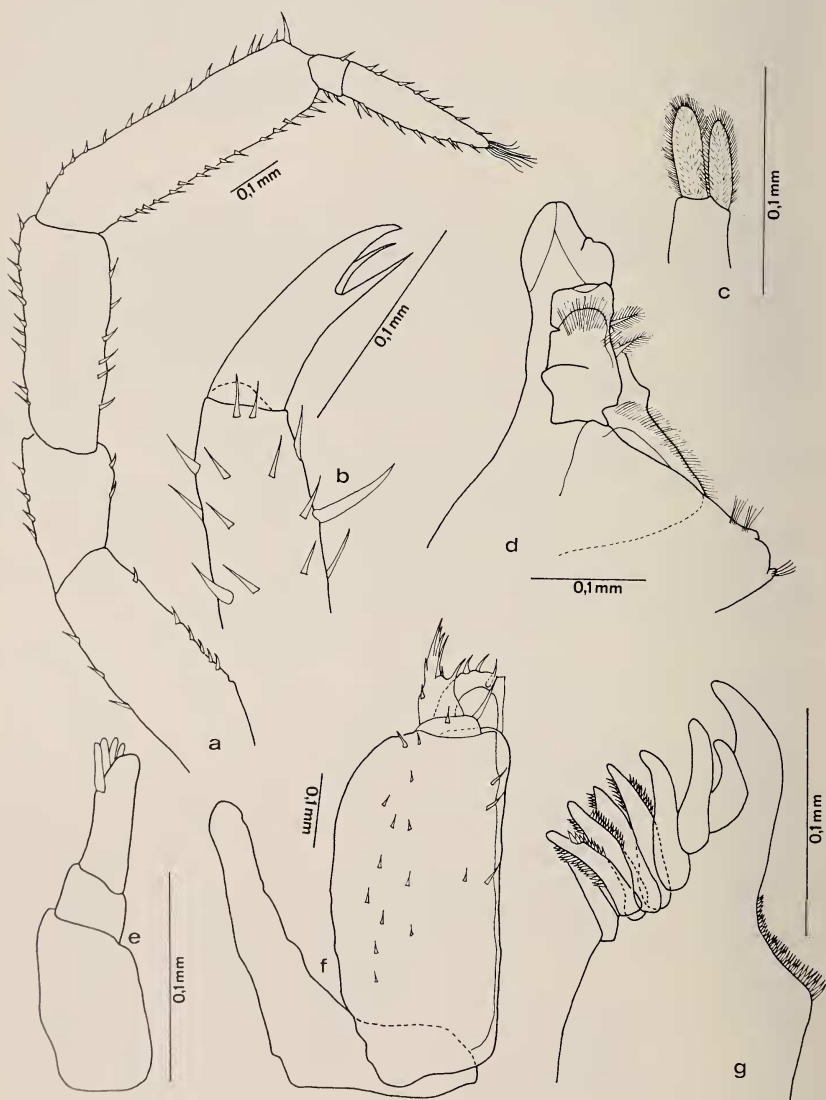


FIG. 4

Akermania besucheti n. sp.:

- a) IIrd antenna; b) dactylos of pereiopods;
 c) terminal tip of the inner plate of the first maxilla; d) left mandible; e) Ist antenna;
 f) maxilliped; g) terminal tip of the outer plate of the first maxilla

ments, under rotten tree stumps and stones, and *A. sylvatica* occurs at a remarkably high level. Finally the species from Sri Lanka lives in the "dry zone" of the island (see BRINK *et al.* 1971).

Adaptation to very different conditions probably accounts for an early adaptive radiation.

The up to date distribution of the genus *Akermania*, the origin of which we consider as typically gondwanian, is particularly interesting.

Since there are no records concerning this genus, from South America and Australia, we could suppose that *Akermania* underwent a particular development after the breakup of Gondwana and before the disjunction of the Indian Plate from South Africa and Madagascar, at the beginning of its long drift towards asiatic continent.

This could be a chapter in the more complex history of Akermaninae, and more generally of Armadillidae.

The subfamily Akermaninae, according to VANDEL's definition, covering a range extending from South America to Marquesan Islands, through the island of S. Elena, South Africa, Madagascar and Australia should have developed on the whole continental system of Gondwana.

Concluding, the genus *Akermania* seems to be a biogeographical and ecological relict of extreme interest and is one of the ancient form of the faunistic complex populating the indian subcontinent.

The new species enriches the biogeographical pattern of India proposed by MANI (1974).

RÉSUMÉ

Un élément gondwanien de la faune isopodologique terrestre de l'île de Sri Lanka (Ceylon) est décrit. Il s'agit d'un Armadillidae appartenant à une sous-famille récemment individualisée par Vandel, Akermaninae, dont on discute le caractère provisoire. La nouvelle espèce, *Akermania besucheti* n. sp., peuple la région septentrionale, sèche, de l'île. Les autres espèces connues du même genre montrent une distribution typique: Natal, Transvaal du Sud, Madagascar.

REFERENCES

- ARCANGELI, A. 1927. Isopodi terrestri raccolti nell'Estremo Oriente dal Prof. Filippo Silvestri. *Boll. Lab. Zool. gen. agr. Portici* 20: 211-269.
- BARNARD, K. H. 1932. Contributions to the Crustacean fauna of South Africa. N. II. Terrestrial Isopods. *Ann. S. Afr. Mus.* 30: 179-388, 80 figs.
- 1949. Descriptions of New Species, and Records of Woodlice from South Africa and Southern Rhodesia. *Ann. Natal. Mus.* 11 (3): 523-525.
- 1958. Terrestrial Isopods and Amphipods from Madagascar. *Mém. Inst. Scient. Madagascar* 12, Tome XII: 67-111, 19 figs.
- 1960. Terrestrial Isopods from the Transvaal. *Ann. Natal Mus.* 15: 45-55, 2 figs.
- BRINK, P., H. ANDERSSON and L. CEDERHOLM. 1971. Report No. 1 from the Lund University Ceylon Expedition in 1962. *Entomol. Scand. Suppl.* I. 1971.
- BUDDE-LUND, G. 1913. Terrestrial Isopoda particularly considered in relation to the distribution of the southern Indo-Pacific species. The Percy Sladen Trust Expedition in the Indian Ocean in 1905, under the leadership of Mr. Stanley Gardiner. IV. *Trans. Linn. Soc. Zool. Lond.* (2) 15: 367-394.

- COLLINGE, W. E. 1916. XII. Contributions to a knowledge of the terrestrial Isopoda of India. Part. II. Some New Species of *Paraperiscyphis*, *Cubaris*, etc. *Rec. Indian Mus.* 12: 115-151.
- 1919. Contributions to a knowledge of the Terrestrial Isopoda of Natal. Pt. II. *Ann. Natal Mus.* 4: 229-233.
- JACKSON, H. G. 1936. Terrestrial Isopods from Malaysia. *Bull. Raffles Mus.* 12: 76-87.
- MANI, M. S. 1974. Ecology and Biogeography in India. *The Hague* 1974: 773 pp.
- SCHULTZ, A. G. 1970. A redescription of the Terrestrial Isopod *Globarmadillo armatus* Richardson, 1910 (Oniscoidea, Sphaeroniscidae). *Crustaceana* 18: 90-92.
- VANDEL, A. 1972. Biogéographie. — La répartition des Oniscoïdes (Crustacés, Isopodes terrestres) et la dérive des continents. *C. hebd. Séanc. Acad. Sci., Paris.* 275, Sér. D.: 2069-2072.
- 1973a. Les Isopodes Terrestres (Oniscoidea) de la Mélanésie. *Zool. Verh. Leiden*, N. 125: 160 pp.
- 1973b. Les Isopodes Terrestres de l'Australie. Etude systématique et biogéographique. *Mém. Mus. natn. Hist. nat. Paris, Nouv. Sér. Zool.* Tome 82: 171 pp.

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